

**STATE OF VERMONT  
PUBLIC SERVICE BOARD**

Amended Petition of Entergy Nuclear Vermont Yankee, LLC, and )  
Entergy Nuclear Operations, Inc. for amendment of their Certificate )  
of Public Good and other approvals required under 30 V.S.A. ) Docket No. 7862  
§ 231(a) for authority to continue after March 21, 2012, operation of )  
the Vermont Yankee Nuclear Power Station, including the )  
storage of spent nuclear fuel )

DIRECT TESTIMONY OF THOMAS E. KAVET  
ON BEHALF OF THE  
VERMONT DEPARTMENT OF PUBLIC SERVICE

October 22, 2012

Summary: Mr. Kavet's testimony relates to the economic benefit criterion of 30 V.S.A § 248(b)(4) and to the greater issue of whether Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. ("Entergy") should be granted a Certificate of Public Good under 30 V.S.A. § 231. Mr. Kavet offers testimony regarding the economic impacts of retirement of the Vermont Yankee Nuclear Power Station ("VY Station") versus the impacts of continued operation of the plant and the various associated public policy priorities. Mr. Kavet also discusses the economic impact report entitled "The Economic Impact of the VY Station on Windham County and Vermont" and the related testimony of Richard Heaps submitted by Entergy in this proceeding.

Mr. Kavet sponsors the following exhibits:

PSD-TEK-01	Resume of Thomas E. Kavet
PSD-TEK-02	"Consensus Economic and Fiscal Impact Analyses Associated with the Future of the Vermont Yankee Power Plant" (March 2010)
PSD-TEK-03	Paul Greenberg, "The Brand Called Vermont – How the Green Mountain State Cornered the Market on Purity," The Boston Globe (Oct. 12, 2003)
PSD-TEK-04	Sinan Hastorun and Theodore N. Cangero, "Reestimating the REMI Migration Equation Coefficients to Correct for Endogeneity"
PSD-TEK-05	Vermont Council on Rural Development, "Strengthening Vermont's Energy Economy: Final Report and Recommendations of the Vermont Rural Energy Council" (August 2007)

1 Q1. Please state your name and occupation.

2 A1. My name is Thomas E. Kavet. I am President of the economic consulting firm  
3 Kavet, Rockler & Associates, LLC (“KRA”).  
4

5 Q2. Please describe your qualifications and experience.

6 A2. I have been a professional economist for the past 33 years. I worked for 11 years  
7 at McGraw-Hill/DRI (now IHS Global Insight), the largest economic consulting  
8 and forecasting firm in the nation, where I started the Construction and Real  
9 Estate Information Service and was later Vice President, Development and  
10 Product Operations. I have been an independent economic consultant based in  
11 Vermont for the past 22 years, during which time I have been the State Economist  
12 and Principal Economic Advisor to the Vermont Legislature for the past 16 years.  
13 My partner, Nicolas Rockler, and I have extensive experience building and using  
14 regional economic models and performing economic impact analyses. We  
15 currently maintain and manage REMI, IMPLAN, and REDYN economic models  
16 for the State of Vermont on behalf of the Vermont Legislative Joint Fiscal  
17 Office.<sup>1</sup> We have conducted more than 500 regional economic impact analyses,  
18 including analyses associated with energy projects in Vermont and other states. A  
19 more detailed resume and partial client list is attached hereto as Exhibit PSD-  
20 TEK-01.

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<sup>1</sup> “REMI” is the acronym for the economic model developed by Regional Economic Models, Inc., of Amherst, MA. “IMPLAN” is the economic model developed by MIG, Inc. (formerly the Minnesota IMPLAN Group), of Hudson, WI. “REDYN” is the acronym for the economic model developed by Regional Dynamics, Inc. of Phoenix, AZ.

1 Q3. Have you previously testified before the Public Service Board or in other judicial  
2 or administrative proceedings?

3 A3. Yes, I testified before the Public Service Board in the UPC/Sheffield Wind,  
4 Deerfield Wind and GMP/Kingdom Community Wind cases. I have testified  
5 before state legislative committees on hundreds of occasions and at Act 250 and  
6 other public hearings and administrative proceedings such as the Vermont State  
7 Emergency Board.

8

9 Q4. On whose behalf are you testifying in this proceeding?

10 A4. I am testifying on behalf of the Vermont Department of Public Service (the  
11 “Department”).

12

13 Q5. What is the purpose of your testimony?

14 A5. The purpose of my testimony is to comment on the potential economic impacts of  
15 retirement versus continued operation of the Vermont Yankee Nuclear Power  
16 Station (“VY Station”) and the various associated public policy priorities. I also  
17 analyze the economic impact report submitted by Entergy Nuclear Vermont  
18 Yankee, LLC and Entergy Nuclear Operations, Inc. (“Entergy”) entitled “The  
19 Economic Impact of the VY Station on Windham County and Vermont,”  
20 submitted in this proceeding as Exhibit EN-RHW-3 (“Entergy Report”) and the  
21 related testimony of Richard Heaps.

22

1 Q6. Describe your conclusions regarding the economic impact estimates contained in  
2 the Entergy Report and the testimony of Mr. Heaps.

3 A6. The economic impact analysis performed by Richard Heaps on behalf of Entergy  
4 is unreliable and potentially misleading as a measurement of the likely economic  
5 and employment impacts associated with closure of the VY Station. The majority  
6 of the deficiencies in the Entergy Report are the result of model specification  
7 errors and are detailed in the prefiled testimony of Dr. Rockler, my business  
8 partner at KRA, submitted on behalf of the Department in this proceeding. While  
9 the magnitude of the errors in the Entergy Report cannot be quantified definitively  
10 without correcting these specification deficiencies, based on my experience and  
11 comparison with other studies these deficiencies appear significant. For example,  
12 though not strictly comparable due to timing differences and variations in  
13 decommissioning assumptions, the Vermont employment impacts associated with  
14 operation of the VY Station estimated by Mr. Heaps are roughly fifty percent  
15 higher than those estimated via a consensus group that included KRA, economists  
16 from the administration of then-Governor Douglas, Green Mountain Power and  
17 Central Vermont Public Service energy planning experts and economists, and  
18 Department economists in March 2010 in a report entitled, "Consensus Economic  
19 and Fiscal Impact Analyses Associated with the Future of the Vermont Yankee  
20 Power Plant," attached hereto as Exhibit PSD-TEK-02.

21

1 Q7. What other economic considerations should be evaluated in considering the  
2 “public good” in connection with the closure and decommissioning options of the  
3 VY Station?

4 A7. Mr. Heaps testified that the “VY Station provides a good number of relatively  
5 high-paying jobs that result in significant economic benefits for Windham County  
6 and the State of Vermont as a whole.”<sup>2</sup> While this may be partially true (although  
7 likely overstated, as discussed in Mr. Rockler’s testimony), there are also  
8 substantial negative economic externalities associated with extended operation of  
9 the facility. These externalities represent non-trivial economic risks to the state  
10 and should be considered in any assessment of the “public good.”

11 While the radiological health and safety implications of continued  
12 operation of the VY Station are a matter of federal regulation, the economic  
13 implications and externalities of continued operation are not. With an economy  
14 that is especially reliant on tourism, agriculture, and specialty food products,  
15 potential negative economic impacts from continued operation of the VY Station  
16 could have far-reaching effects in Vermont and the region, and the risk of such  
17 negative economic externalities should be considered by the Board in determining  
18 whether operation of the VY Station for 20 years beyond its original license term  
19 promotes the public good.

20 Tourism in Vermont accounts for at least \$1.5 to \$2.5 billion in economic  
21 output, 6%-10% of total Gross State Product (GSP) and 12%-20% of all jobs in

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<sup>2</sup> Prefiled testimony of Richard Heaps, A26.

1 the State.<sup>3</sup> This commerce critically depends upon state characteristics such as  
2 “purity,” “beauty,” “unspoiled landscapes,” and “pristine environment”—  
3 important aspects of the Vermont “brand” as it is often called. For additional  
4 testimony on the Vermont “brand” I refer to the prefiled testimony of Ms. Andrea  
5 Cohen, also filed on behalf of the Department today.<sup>4</sup> Substantial state and  
6 private sector funding goes into the promotion of the Vermont brand, which is  
7 also protected by statutes controlling agriculture, food production, land  
8 development, and marketing that uses the Vermont name, including but not  
9 limited to Act 250, the Use Value Appraisal (commonly known as “Current Use”)  
10 law,<sup>5</sup> and Rule CF 120 regarding representations of Vermont origin.

11 Like the accounting concept of “goodwill” in valuing private sector firms,  
12 the brand has substantial economic value in direct tourism, Vermont food and  
13 other product sales, and quality-of-life assessments that are referred to in

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<sup>3</sup> Although the tourism industry is difficult to precisely measure, the most rigorous estimates are periodically prepared by Economic & Policy Resources, Inc., of Williston, Vermont. In 2009, the most recent available year, tourism expenditures were estimated to be \$1.42 billion, excluding real estate and other purchases by second home owners. With these expenditures included, this number could easily exceed \$2 billion in 2012.

<sup>4</sup> See also Paul Greenberg, “The Brand Called Vermont—How the Green Mountain State Cornered the Market on Purity,” *The Boston Globe* (Oct. 12, 2003), included here as Exhibit PSD-TEK-03, and periodic state tourism marketing plans such as “The VERMONT Brand and its Potential for Licensing with state-based Companies,” a report to the General Assembly on January 2006 by Christine M. Werneke, Chief Marketing Officer, State of Vermont, included as Exhibit PSD-AC-05 to the prefiled testimony of Ms. Cohen.

<sup>5</sup> The Vermont Department of Taxes website, available at <http://www.state.vt.us/tax/pvrcurrentuse.shtml>, states that the purpose of the Current Use law “was to allow the valuation and taxation of farm and forest land based on its remaining in agricultural or forest use instead of its value in the market place. The primary objectives of the program were to keep Vermont’s agricultural and forest land in production, help slow the development of these lands, and achieve greater equity in property taxation on undeveloped land.”

1 economic parlance as “amenity values.”<sup>6</sup> Amenity values affect the willingness  
2 of workers to migrate and the price at which they will do so. Virtually every  
3 regional economic model (REDYN and REMI included) capture this concept and  
4 reflect a positive amenity value for locating in Vermont. The same state attributes  
5 that inform the Vermont brand also affect this amenity value. Though difficult to  
6 measure precisely, this value is likely to exceed direct tourism and agricultural  
7 revenues and affects virtually every industry in the State.

8 Continued operation of the VY Station could harm the Vermont brand and  
9 the State’s image of purity and environmental stewardship. The risk of such a  
10 diminution of brand value represents a real economic cost that should be  
11 considered when evaluating the extended operation of the VY Station.

12

13 Q8. Are there any additional economic considerations that should be evaluated in  
14 considering the economic benefit and the “public good” in connection with the  
15 retirement versus the continued operation of the VY Station?

16 A8. Yes. There are benefits associated with state economic and energy policy goals  
17 and objectives that may be inconsistent with extended operation of the VY Station  
18 for an additional twenty years beyond its license term.

19 The Comprehensive Energy Plan, released by the Department in 2011 and  
20 included as Exhibit PSD-ASH-01 to the prefiled testimony of Dr. Asa Hopkins

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<sup>6</sup> Amenity values “are generally in line with conventional wisdom regarding the natural attractiveness of states.” States with low population density and ample recreational opportunities, which also tend to be more family-friendly, have high amenity values. By contrast, states with congestion, environmental pollution, and higher crime have low amenity values, meaning they are less attractive to migrants. See Sinan Hastorun and Theodore N. Cangero, “Reestimating the REMI Migration Equation Coefficients to Correct for Endogeneity,” 15-19, attached hereto as Exhibit PSD-TEK-04.

1 filed today on behalf of the Department, outlines an aggressive plan to develop  
2 renewable energy sources in Vermont and achieve 90% of the state's total energy  
3 needs from renewable sources by 2050. Exhibit PSD-ASH-01 Vol. 2, pages 43-  
4 47 and Appendix 4. Plans like this can generate substantial employment and  
5 economic benefits that far outweigh employment and related economic losses  
6 from the closure of expiring non-renewable power plants such as the VY Station.  
7 It is anticipated that the Comprehensive Energy Plan will result in net state  
8 employment gains of more than 1,000 jobs per year by 2030 through investment  
9 in energy efficiency and renewable energy build-outs.

10 A state-specific study released in 2007 by the Vermont Council on Rural  
11 Development and included here as Exhibit PSD-TEK-05 cited the potential for  
12 more than 11,500 net new jobs over a 10-year period from accelerated renewable  
13 energy development. The study also noted further potential state economic  
14 benefits from the emergence of a critical mass of local manufacturing capacity  
15 associated with renewable energy development and the good "fit" between  
16 Vermont's tradition of environmental stewardship and local renewable energy  
17 production.

18 Additionally, the 2010 "Consensus Economic and Fiscal Impact Analyses  
19 Associated with the Future of the Vermont Yankee Power Plant" report discussed  
20 above (Exhibit PSD-TEK-02) utilized a comprehensive dispatch, pricing, and  
21 economic model,<sup>7</sup> and showed net employment growth possibilities through

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<sup>7</sup> REMI was the regional economic model used in this analysis. The dispatch model was developed and managed by LaCapra Associates of Boston, MA.



1           accelerated renewable energy development comparable to these two studies, with  
2           annual net employment gains exceeding 2,600 per year after 2040  
3

4   Q9.   Please summarize the conclusions of your analysis.

5   A9.   I conclude that any analysis of “public good” should include the potential  
6           economic costs associated with the continued operation of the VY Station  
7           discussed above.   Conversely, renewable energy development could offer  
8           economic and fiscal benefits that outpace any benefits associated with extended  
9           operation of the VY Station, and would also further Vermont’s stated energy and  
10          economic development policies.   This would allow Vermont to achieve healthy  
11          economic growth while remaining consistent with the Vermont brand and  
12          traditional Vermont values and attributes.

13

14   Q10.   Does this conclude your testimony?

15   A10.   Yes it does, at this time.